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Title: Tackling alcoholism and domestic violence in fisheries - a new opportunity to improve wellbeing for the most vulnerable people in global fisheries.

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Short running title: Access to fisheries and gender-based violence

Abstract

The UN Sustainable Development Goals (SDGs) principle of 'Leaving no one behind' focusses global attention on the poorest and most vulnerable people. As different sectors grapple to engage meaningfully with this principle, we posit that greater consideration of social problems in fishing-dependent communities, such as alcoholism and domestic violence, presents an opportunity for fisheries governors to contribute to the SDGs mandate. We further argue that governing marine resources in ignorance of these problems can risk harming some of the most vulnerable people in fisheries. Using subjective wellbeing data from women living in two small-scale fishing communities in India and Sri Lanka, we demonstrate the prevalence and impact of alcoholism and domestic violence in fishing households. We further highlight how policies which restrict access to marine resources can undermine important coping strategies, in particular the ability of women to act as *independent income-earners,* exacerbating harm to already vulnerable women. A scoping review of the literature reveals that alcoholism and domestic violence are reported in certain fisheries around the world, and we theorise how this may relate to the nature of fishing life, and growing stresses regarding the future of fishing. Tackling the burdens of alcoholism and domestic violence in fisheries, where it is an issue, is an opportunity to improve wellbeing for men, women and their families. The paper concludes with tangible actions which marine resource governors could adopt to contribute to the 'leave no one behind' ethos.

Key words: abuse, access, conservation, gender, marine, vulnerability.

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1. Introduction

The principle of 'leave no one behind', which underpins the 2030 agenda for sustainable development, is built on global recognition that ending extreme poverty and reducing inequalities requires the prioritisation of actions benefiting the poorest and most marginalised people (Stuart and Samman 2017). The principle commits the global community to 'put the last first' (Chambers 2014), however translating the rhetoric into meaningful change is difficult because prioritising the poorest, the socially excluded, and hard to reach groups, is often politically and economically challenging (Wise and Hind 2016).

This challenge is particularly acute in fisheries, which must create synergy between the often competing agendas of improving human wellbeing alongside sustainable use and protection of the marine environment (Howe et al., 2014; Costanza et al., 2016). The contributions of the fisheries and marine conservation sector could, and should, reach beyond Goal 14 'Life Below Water' to engage with the Sustainable Development Goals more broadly. New thinking and innovation is required to achieve sustainable oceans, whilst also securing livelihoods and enhancing the wellbeing of the millions of people who depend on the sea for a living; capture fisheries and aquaculture provide direct employment for some 200 million people globally. Of these, women represent an average participation rate of almost 50% in fisheries activities, including full and part time fishing and post-harvest activities, with women accounting for 25–50% of the small-scale fisheries catch (World Bank 2012, Harper et al., 2013). If statistics for gleaning and aquaculture were included, these figures could be higher (Weeratunge et al 2010).

Whist SDG 14 includes 'access for small-scale fisheries to resources and markets' as one of its targets, the reality is that this often sits uncomfortably alongside parallel targets which are dominated by resource sustainability, conservation and protection. In light of

unprecedented levels of environmental, economic, and social change experienced throughout global fisheries, well-functioning family and community structures are crucial to building resilience to change, and securing long-term survival of sustainable fisheries and those who depend upon them.

When applied to fisheries, the UN Sustainability ethos to place greater attention to the poorest and most vulnerable already fits well with growing arguments about the need for more thorough analyses of the complex causes of poverty in fisheries (Bene and Friend 2011), including analyses of wellbeing (Coulthard et al 2011, Johnson et al 2018), and the importance of gender in any approach (Harper et a 2013). Whilst the significant role that women play in fisheries is increasingly recognised in the fisheries literature, the most recent research stresses the need to go beyond the discussion of women's roles per se, to address the broader "structures of discrimination", which hinder women's wellbeing and equality within the fisheries sector (Weeratunge et al 2010, Locke 2017:2).

Drawing on a social wellbeing methodology, this paper begins by presenting empirical evidence which demonstrates the particular importance of *good marital relations* in women's self-assessments of wellbeing, and the significance of alcoholism and domestic violence on women living and working in fishing communities in Sri Lanka and India. The influence of marital relations over women's wellbeing is well documented in the literature, especially in the context of South Asia where this research took place. Structures of patriarchal power (Molyneux, 1985; Agarwal 1988), gender inequalities, devaluation of women (Kabeer, 2005), unequal access to resources (Fisher and Naidoo 2016), and Dowry (Srinivasan and Bedi, 2007; Pandey et al., 2009) are but some of the contextual factors used to explain high rates of domestic violence in South Asia, reported as being the highest in the world (WHO, 2013). However, this study of women's wellbeing in a *fisheries* context (all respondents were or had

been married to fishermen) warranted further exploration as to some of the implications for fisheries governance, and in particular, marine conservation approaches which, in both study areas, restricted women's access to marine resources.

Utilising existing theory on women's empowerment, gender equality, and the importance of women's *independent income* on overall household wellbeing, we argue that if care is not taken, governance approaches which restrict access to marine resources can inadvertently undermine wellbeing, and crucial coping strategies used by women to adapt to changing resource access. This is particularly problematic in households that experience alcoholism and domestic violence, where restricting access to vital marine resources risks placing already vulnerable women into greater harm. In essence, this works directly against the UN mandate to prioritize the poorest, and conflicts with SDGs 1 to 'end poverty' and SDG 5 to achieve 'gender equality and empower all women and girls'. We emphasize this point using a vignette of marine conservation from our India case study.

We broaden the significance of these findings with a scoping review of the literature, which highlights cases of alcoholism and domestic violence reported in fisheries communities around the world. We theorise that these cases may be underpinned by the particular nature of fishing work, social relationships within the fishing community, and the common stresses placed on marital relations in the home, stresses which may be growing as families struggle with uncertain fishing futures. Directly addressing the burdens of alcoholism and domestic violence in fisheries worldwide presents a new and under-utilised opportunity to improve wellbeing for fishermen and (fisher)women, especially those who are most vulnerable, contributing directly to the 'leave no one behind' ethos. The paper concludes with tangible suggestions for all *marine resource governors*, an inclusive term which recognises the plurality of different peoples who make decisions and influence how marine resources are used

(Kooiman et al 2005, Kooiman and Bavinck 2013). This includes policy makers and practitioners who identify with marine conservation and fisheries management, but also extends to community leaders, boat owners, and fishing families themselves, important actors within fisheries who harbour great potential to really tackle the type of social problems discussed in this article.

2. Exploring subjective wellbeing of women in fishing communities

Social wellbeing has received growing recognition as a holistic and multidimensional framework and methodology capable of capturing the diversity of peoples' lives, with particular relevance to understanding how people engage with the natural environment (Daw et al 2015), including fisheries (Coulthard et al 2011, Weeratunge et al 2014; Voyer at al 2017). We define social wellbeing following Gough and McGregor (2007) as a combination of three inter-related dimensions i) a *material* dimension which emphasizes the resources people have and the needs they are able to objectively meet with those resources; ii) a *relational* dimension which considers how people act, through relationships with others, to pursue wellbeing; and iii) a *subjective* dimension which assesses how people think and feel about the quality of life they can achieve.

This approach is innovative in that it combines both objective and subjective assessments of wellbeing, and creates a space for people's own criteria of wellbeing, enabling researchers to measure what matters most in peoples' lives. Data presented here were collected as part of a wider study using a Social Wellbeing framework, including men and women living in fishing-dependent societies in India and Sri Lanka (ESRC grant ref ES/I009604/2, see also Coulthard et al (2014)). Whilst all three inter-related dimensions of

96 wellbeing (material, relational and subjective) were studied, this article focuses on a subset
97 of this data: the subjective dimension of wellbeing, as expressed by women.

98 Whilst men occasionally mentioned social problems such as alcoholism in the
99 community, we focus here on the narratives of the women, as they give a more detailed
100 insight into the impacts on home life, and reinforce an often marginalised perspective about
101 how women think and feel about things that matter most to them. Focusing on women's
102 wellbeing in fishing communities is all the more significant given their recognised role in
103 bringing up and shaping future generations of fishers (Thompson, 1985; Symes and
104 Frangoudes, 2000; Gustavsson and Riley, 2018). As Neis et al., (2013) note, a gender-and
105 generationally-blind approach to fisheries and marine resources has resulted, not only in
106 missed opportunities for sustainability, but increased vulnerabilities and reduced resilience
107 for many fisheries.

108 Research was conducted over an eight-month residential period in two villages
109 located in Rekewa Lagoon in Sri Lanka, and bordering the Gulf of Mannar Biosphere Reserve
110 in Tamil Nadu, India. In both study areas, fishing is small-scale with high livelihood
111 dependence on marine resources and women, in particular, regularly experience significant
112 restriction of their livelihood activities through marine conservation legislation. In the Sri
113 Lanka study, women are involved in coral and shell collection (Weeratunge 2010) which,
114 historically, have constituted important economic resources, especially for women from the
115 poorest families in Rekewa (FAO 2005). Coral mining, predominantly used in paint
116 manufacture, was practiced widely in the Rekewa region, however the nation-wide coral
117 mining ban in 1983, and the 2005 tsunami, which destroyed many of the kilns necessary for
118 coral processing, has meant significant reduction in this practice. In Rekewa today, many

119 women are involved in landing site activities such as cleaning nets, separating and packing
120 fish, and loading nets into boats, activities which are largely dependent upon good relations
121 with – usually male- boat owners and fishermen (this research). In the India study, which we
122 re-visit as a detailed vignette later on, women are involved in the collection of seaweed which
123 is sold locally, and occasionally accompany their husband at sea to help fish, or gain access to
124 offshore seaweed banks. Creation of the Gulf of Mannar Marine Reserve in 1989 resulted in
125 the banning of all seaweed collection, creating significant conflict between fishing villages and
126 local authorities, as is often reported in the national media (New Indian Express 2018).

127 A total of fifty in-depth semi-structured interviews were conducted with women at
128 both sites (Sri Lanka: n=30, India: n=20), all of whom were, or had been, married to fishermen,
129 and with an age demographic ranging from 30 to 70 years. Interviews, which lasted up to
130 two-hours in length, explored women's subjective wellbeing (ie their own subjective
131 evaluation of life domains they deem to be important for wellbeing). An adapted Global
132 Person Generated Index (GPGI) facilitated discussion and ranking of self-nominated life
133 domains (Camfield and Ruta 2007; Coulthard et al., 2014). The GPGI tool asks respondents to
134 nominate up to five areas (wellbeing domains) that they consider most important for their
135 capacity to 'live well' in their respective communities. For each domain, respondents are
136 asked to explain their selection, and to then score each using a Likert scale to indicate their
137 level of satisfaction (where 1 represents 'the worst you can imagine' and 5 represents 'exactly
138 as you would like it to be'). The GPGI was followed by a more in-depth interview, which asked
139 respondents to explain their selection of domains and allocated scores, and encompassed
140 several quality of life questions, which included asking about the happiest and most difficult
141 times in their lives.

142 It was through this process that the importance of having a 'good husband', often
143 described as 'one who avoids alcohol and violence', emerged as an important part of living
144 well. The openness with which women spoke about close relationships, a topic notoriously
145 difficult to research (Jha and White 2016), is testimony to the interviewers' approach and
146 patience. Both interviewers were women, fluent in the local languages (Tamil and Sinhala),
147 and had spent significant time living close to the research village. It also speaks to the value
148 of using open-ended questions. The approach avoided questioning about marital conflict
149 directly, but empowered respondents to bring to the agenda the parts of their lives which
150 they deemed to be the most important, and that they felt comfortable to share,
151 demonstrating the contribution of qualitative methodology in wellbeing research (Camfield
152 et al 2009, White, 2014). In most cases, the in-depth interviews were conducted during a
153 second phase of the research, and constituted part of a repeat visit to the household, which
154 may also have helped establish rapport and trust.
155 Data from the two study sites were combined (Fig. 1), due to similarities across the
156 study areas, and given that our purpose here is to illuminate the significance of marital
157 relations, alcoholism and domestic violence in women's lives, rather than to explore
158 differences between sites. However, we also note and explain those wellbeing domains that
159 are specific to each site in order to capture the influence of local context.
160 **[Insert table 1]**
161
162 Wellbeing domains marked (SL) indicate those domains which were mentioned only by
163 women in the Sri Lankan study and include 'Happiness of others', 'Religion' (living according
164 to Buddhist teaching), 'having nice clothes' and 'owning a vehicle'. The latter is particularly
165 important to women in the Sri Lankan context due to the remote location of the village and

166 the need for three-wheelers for local transport and the marketing of fish. Wellbeing domains
167 marked (I) indicate India specific domains, and include specific mention of 'dowry payments
168 for a daughter's marriage' (in southern Sri Lanka, dowry is less prominent and marriage was
169 discussed more generally in the context of children's happiness), and 'Access to Islands',
170 which captures a specific conflict over seaweed collection which is curently restricted by the
171 Gulf of Mannar Marine Reserve status (detailed later in the paper).

172 Table 1 clearly illuminates the importance of social relationships to women's
173 wellbeing, with good marital relations (where a spouse was specifically mentioned),
174 relationships with broader family, and relations with neighbours, appearing frequently in
175 women's assessments of the top five most important things needed to live well. Good marital
176 relations were joint fourth – alongside having a house to live in – as the most frequently
177 mentioned wellbeing domain. The important role played by social relationships in enabling,
178 or disabling, wellbeing concurs with other studies, for example Camfield's et al., (2006) study
179 in Bangladesh, which demonstrates the centrality of relationships with spouses and in-laws
180 to younger women's happiness in particular, and the growing literature on 'Relational
181 wellbeing' (Gough and McGregor, 2007; White & Blackmore, 2016) – a concept which
182 emphasizes the social and cultural construction of wellbeing and explicitly conceives the
183 production of wellbeing through interaction with others (White, 2015, 2017).

184

185 **[Insert Fig. 1.]**

186

187 Whilst we acknowledge that our sample size is relatively small, Fig. 1 shows the
188 average satisfaction score that women gave to each nominated wellbeing domain. Areas of
189 particular dissatisfaction (a score of 2 or less) include fishing equipment, access to islands

(India), freedom from debt, daughter's marriage (India), access to a vehicle (Sri Lanka), and savings. Wellbeing domains of high satisfaction (4 or above) include public participation, clothing (Sri Lanka), and good neighbourly relations, demonstrating the important contribution of these domains to women's subjective wellbeing.

It is interesting to note that the average satisfaction scores for marital relations are lower than those scores allocated to family and neighbourly relationships (when analysed as separate cohorts, Indian average satisfaction with marital relationships drops further to 2 'Poor'). However, one must be wary of interpreting data based on the satisfaction scores alone. Limitations include accounting for 'adaptation' where a person becomes accustomed to a poor situation over time and thus scores more highly than expected (Groot 2000, Clark 2012), and cultural taboos around so clearly stating dissatisfaction with a spouse's behaviour (Ravneet and Garg 2010; White, 2014). These underscore the importance of embedding the GPGI within an in-depth interview, and not as a standalone exercise. Furthermore, respondents were asked to nominate domains that were important for living well and, as such, the method may underreport domestic violence, compared with approaches which investigate its occurrence more directly. The sensitivities associated with research into domestic violence, and the common reluctance to discuss the topic for fear of reprisal, shame, stigma, and social norms/ expectations are well documented (Pandey et al., 2009; Ravneet and Garg, 2010).

In India, 45% of interviewees reported exposure to alcoholism, and 30% had experienced (physical) domestic violence, with similar levels reported in Sri Lanka (40% and 30% respectively). In several interviews, women expressed that they were 'fairly satisfied' with their marital relationships, but detailed aspects of violence later in the interview. In at least three of the interviews, women stated that they were now satisfied with their marital

relationships following a past period of domestic violence, which they felt had improved following an intervention, often from extended family or the village council. Busby's (2000: 196-199) anthropological study of a South Indian fishing village nicely captures the limitations of researching domestic violence in South Asia, describing how violence is commonly normalised as an 'expected' part of life, and that its prevalence does not deter women from describing their husbands as 'good men', 'kind' and 'dependable'. Her interview with fisherman Varghese and his wife (following his wife's unexpected disclosure of her back problems caused by his beatings) is particularly powerful:

"It's because he beat me', she said, indicating Vaghese with a nod. 'He beat me up very badly once and it's never been the same since'. Varghese looked suitably contrite, and the other people present nodded and nudged him…'If he's drunk he does it…when he's drunk he causes lots of trouble!' Her tone was amused and indulgent, like a mother describing her son's waywardness, and there was general laughter at Varghese's sheepish expression…'I try to stop him from drinking' she went on 'but what can you do'… Apart from this occasional lapse, it seemed that Varghese was a model husband. 'When I am sick, he does all the household work, the cleaning and washing. He will even give me a bath and cook. If he is not at sea and not drunk he does almost everything'".

In a similar vein to Busby's study, one interviewee in Sri Lanka (SL 4) detailed frequent episodes of serious physical abuse following her husband's alcohol consumption, including being "chased away at knife point", but lamented that she was reluctant to leave him since "he is very good when he is normal (without alcohol)". As Jayasuriya et al., (2011:1098) comment, regarding the normalisation of domestic violence in Sri Lanka, "*When it is also*

believed that the man should be the "boss," this creates a culture in which men are "allowed" to abuse alcohol or drugs and demonstrate their power over women, even in the form of overt violence".

These statements reveal something of the sensitivities and complexities of researching aspects of alcohol abuse and domestic violence, alongside the high occurrence with which women, at both sites, reported such problems. A regular association between being drunk and being violent was found throughout the study. All the interviewees who reported domestic violence also reported alcohol abuse, although a small proportion of women cited problems with alcohol without the associated violence (10% and 15% of respondents in Sri Lanka and India correspondingly). It is important here to consider the impacts of alcoholism on women's lives even for those who did not report domestic violence. The majority of interviewees describe the drainage that alcohol purchases cause on already limited household budgets, with many women relying on grown-up children or extended family for additional financial support, problems that are associated worldwide with alcoholism (Kennedy and Peters 1992; Noponen and Kantor, 2004).

Alcoholism and domestic violence are recognised problems in the study areas which create significant barriers to wellbeing for women and men. Alcoholism is well known to be on the increase in South Asia (Franco 2015) and, in India, it has become an important political issue, with central and state government parties advocating, and enacting, variations of alcohol bans throughout the country. Alcohol prohibition policies are often accompanied by supportive protests from women, and indeed are stimulated by them (Patnaik, 2004; BBC, 2016; Thekaekara, 2016), and have been shown to reduce reported incidences of domestic violence (in India) (Luca et al., 2015).

Clearly, these issues are not solely limited to fishing communities. However, when such problems appear prominently within fishing communities, marine resource governors must take these into account when developing management interventions and engaging with fishers in governance arrangements. The vignette presented in the next section illustrates how women's vulnerability can suffer when attention is not paid to gender and social wellbeing.

3. Marine conservation undermining women's wellbeing – a vignette from India

In this research, the impacts of limiting access to marine resources on women's wellbeing were particularly stark in the India study, where collection of seaweed has been heavily restricted under legislation from the Gulf of Mannar National Park and Biosphere Reserve (10,500 sq km and India's largest marine protected area), created in 1989 under the UNESCO Man and Biosphere Program.

[Insert Fig.2.]

Twenty-one small islands off the coast of Ramanathapuram district form a protected and closed area, although they lie within reach of an estimated 125 fishing villages which line the shore (Bavinck and Vivekanandan 2011). Within this core area, the 1972 Wildlife Protection Act prohibits any entry into the park or extraction of natural resource, which includes fishing and the harvesting of seaweed, activities which are seen as a threat to the reserve's coral reefs (Kumaraguru et al.,2000; Senthilkumar et al.,2008).

The reserve designation affects an estimated 5000 women from near-by fishing villages, who historically have travelled to the islands to harvest seaweed, which they sell locally for use in various industries (cosmetic and soft drinks including Coca-Cola) (CMFRI census 2005, Rajagopalan 2007). Whilst the ban on seaweed collection was enacted in 1989, Rajagopalan (2007) suggests that enforcement was weak up until 2002, which saw the establishment of the Gulf of Mannar Biosphere Reserve Trust, part of a UNDP-GEF funded project, which had financial outlays for enforcement and implementation. Our research suggests that there is still significant dependence upon (illegal) access to seaweed in the area; all interviewees stated seaweed collection as their 'predominant livelihood and income source', with 80% of respondents also being involved in helping their husbands fish, and 30% sourcing additional income from making handicrafts using seashells. Interviewees describe seaweed collection as an activity which is passed down 'from mothers to daughters', although future seaweed dependency may change in light of efforts to improve the prioritisation of girl-child education in India. Whilst a universal female education bill was passed by the Govt. of India in 1994, offering parents incentives to send their daughters to school, gender disparities persist, particularly in rural locations (Jain et al 2017) such as the Gulf of Mannar. In our research, the India cohort of interviewees were aged between 30 and 54 years and 75% had no education at all, however, 'education for children' appeared frequently in women's self-determined wellbeing domains.

This research, conducted in one of the villages bordering the marine park, found that the 'ability to access the islands' appeared frequently (65% of respondents) in women's top 5 most important criteria for 'living well' (Table 1), and the domain scored one of the lowest satisfaction rates (average 1.8, where Poor = 2; and 1= the worst you can imagine). Both men and women feel a strong attachment to islands often describing them as 'a mother land'

where they have spent time fishing, collecting seaweed, and (in former times) residing on the islands for prolonged periods. Today, many women still travel to the islands to collect seaweed, which risks reprisal from the Forestry Department (the governing body for marine conservation legislation) in the form of monetary fines, gear and boat destruction or confiscation, and general intimidation.

Seaweed collection, which is profitable relative to other work and requires little initial investment, secures financial autonomy for woman, and is a significant income contribution to the household. The importance of financial autonomy is well recognised in the literature on women's empowerment (Kabeer 1999), and has proven to underpin family-wide wellbeing, through greater investment in child health (Mandal et al 2016), food security, and education (UN 2018). In this study, financial autonomy through seaweed harvesting seemed *especially important* for women living with alcoholism and domestic violence (almost half of all women reported alcoholism in their home, with 1 in 3 experiencing domestic violence), since it reduces the risks of earnings being squandered on alcohol consumption, and can boost status in the home, as is demonstrated in the except below:

Interviewee #8: *My husband works as a crew member in a vallam boat. He is an alcoholic; if he earns Rs 100, he would spend Rs 80 on alcohol. I meet the family expenses from the income that I earn from seaweed collection….it is the main and most important source of income for me. Now I meet most of the family needs from my earnings. I can give food and clothes to my children. I can take them to a hospital if they fell ill. Without this income how can we survive?*"

In a similar vein, Interviewee #19 describes what women have achieved in the village through financial independence;

"*Our men mostly spend their income on alcohol. So women generate income through seaweed collection and slowly and steadily save money. In most of the families, women provide financial support during emergency. They keep their savings and make investments in land and building houses. It is not an exaggeration that this is a village that is made by the hard work of women's labour*".

There is some evidence from the literature that financial independence can even *dissuade* domestic violence, either by the work place providing a source of refuge for women (in this case, women frequently recalled residential periods on the islands), or by securing independent purchase of houses or land, which can bolster the power that women have within the family (Rao, 1997; Sabarwal et al., 2014, Bosak et al 2019). Drawing from John Nash's work on cooperative bargaining problems (see also Sen 1999), Agarwal (2009) argues that owning property enhances a woman's bargaining power within the household, and provides tangible exit options, and thus a strong fall-back position should bargaining strategies fail. If we apply this theory to the context of women's access to marine resources, such as the seaweed resources in our India vignette, we reveal the true value of those resources for vulnerable women. Access to resources, understood as mediated both by legal rights and via structural and relational mechanisms (Ribot and Peluso 2003), not only provides income-earning opportunities (softening the household impacts of alcoholism) but also enables financial autonomy and empowerment, which may (potentially) reduce the risk of domestic violence.

Additionally, in this case study, women with good marital relations often describe going fishing with their husbands – either directly fishing (to contribute to household income)

or to travel (via the family boat) to the islands to engage in seaweed collection. Women who live with an abusive partner are *further disadvantaged* since they have reduced opportunity to fish with their husband; 66% of women who reported domestic violence in the India cohort, also commented how they were unable to fish with their husbands, as illustrated by Interviewee #6:

"I want my husband to stop drinking and become a responsible person. I am very much interested to buy a vattai (small boat) and work along with my husband. I want to provide good education to my sons…. People may persuade him but it all depends upon him whether to change or not…I think a vattai is important to have a secure income. Owning a vattai gives prestige in the community. But without my husband's help, I cannot operate a vattai on my own".

This limitation not only reduces overall household income, but often means that women have to find their own means of traveling to the islands. This typically involves either paying 100Rs to travel in a collective boat (Vallum), which is costly, often poorly timed with low tides (when seaweed is exposed for collection) and less convenient, or to self-row in their husband's boat (when not in use) which involves a high risk journey at sea. Several women in the village have drowned collecting seaweed on a rising tide, a risk exacerbated by poorly timed transport. Prior to the marine reserve legislation, women would remain on the islands to capture several low tides at a time – a more efficient and safer means of seaweed collection. This is now rarely done due to pressures from the Forest Department, in their attempts to enforce the exclusion zone.

In this case study, women who are already vulnerable through abusive marital relationships, *are further disadvantaged* by the island exclusion zone than those who, through healthier marital relations, are able to compensate for the loss of earnings by accompanying

379 their husbands in the boat, either for fishing or via safe travel to the seaweed beds. The islands
380 exclusion zone has undermined women's opportunities for resource access, and the financial
381 autonomy this can create, and yet these can make a critical difference to women and
382 children's wellbeing (Agarwal 1994, 2003). This case demonstrates how marine conservation
383 measures can inadvertently further marginalize some of the most vulnerable people in a
384 community – abused women.

385 The final point to make in this case study is the lack of recent evidence to verify
386 concerns that collection of seaweed has a detrimental environmental impact. Women in this
387 study strongly attest that they avoid damaging marine habitat during collection, and that they
388 have created and enforced informal regulations regarding the tools that can be used to
389 harvest seaweed, and the number of harvest days which are limited and shared between
390 different villages. To date, there have been no studies which explore whether seaweed from
391 natural sources could be collected sustainably in the region (a much needed topic for future
392 research). The rationale for the exclusion zones seems motivated by biosphere reserve
393 protocol, a technical 'wholesale solution' to a 'specialized problem' (Degnbol et al 2006),
394 which is blind to the nuanced ways that people engage with their environment (Ostrom et al.,
395 2007), and whose application has resolved only part of the (conservation) problem, whilst
396 exacerbating other (social) problems. As Fortnam et al (2019:323) lament in their recent
397 gendered analysis of how men and women benefit and value ecosystem services in the
398 context of East Africa, "time and again the failure to account for social diversity means that
399 the most vulnerable fail to benefit…"

400 Beyond the Gulf of Mannar Biosphere Reserve, commercial harvesting of seaweed
401 from natural sources is common throughout the southern Tamil Nadu coast, from
402 Kanyakumari in the south, extending northwards to the Gulf of Mannar – a total distance of

almost 300 km known as 'The seaweed belt' (Krishnan and Kumar 2010a). High livelihood dependency typically characterises seaweed collection in the region, with its scope for 'social upliftment' of women being particularly recognised (Periyasamy et al 2014), alongside concerns for future sustainability. Krishnan and Kumar (2010a) allude to the role played by rural development projects engaging with women's self-help groups, which may have stimulated the 'rapid development' of women involved in seaweed collection, with Krishnan and Kumar (2010b) describing the encouragement of 'industrial scale' seaweed farming, through self-help groups in Tamil Nadu, by commercial industries such as Pepsi Cola. The potential for further development and expansion of seaweed mariculture, as a significant commercial activity in India, is growing (Khan and Satam 2003), with recent communications from the 2019 India-International-Seaweed-Summit declaring seaweed cultivation as a 'priority sector' and 'sunrise industry' for India, following countries such as China, the world's largest producer of commercial seaweed.

4. Marine resources and their contribution to women's empowerment – why resource governors must take note.

"*When you own things, you have power; and when you don't, you have no voice. Economic bondage is demeaning, and by enabling women to make their own money, you give them back their dignity"* (UN Women 2019)

The above quote is from Agnes Leina, Executive Director of a Kenyan-based NGO working on indigenous women's rights (UN Women.org), and reflects the wide-spread acknowledgement of the importance of financial independence for women's empowerment. This is also enshrined in the first target for SDG goal 1 'End all poverty in all its forms', which

427 is to: “ensure that all men and women, in particular the poor and the vulnerable, have equal
428 rights to economic resources, as well as access to basic services, ownership and control over
429 land and other forms of property, inheritance, natural resources, appropriate new technology
430 and financial services, including microfinance”.

431 Marine resource governance has an enormous role to play in meeting this target. One
432 major contribution could be to pay more attention to vulnerable women living with
433 alcoholism and domestic violence in fishing communities and the ways in which marine
434 resources can form critical wellbeing contributions for themselves and their families. The
435 ways in which marine resource access translates into diverse wellbeing benefits for women,
436 to include independent income, but also dignity, security, respect, and empowerment, are
437 currently under-recognised and are lacking in many management considerations. The usual
438 focus for management is fishermen’s livelihoods, since men are usually the main resource
439 users and perceived breadwinners. In cases where alcoholism and domestic violence are
440 widespread, the contribution of marine resources as independent income for women,
441 underpinning household level wellbeing is enormously intensified. Such resources risk being
442 under-reported and under-valued in resource management efforts that fail to disaggregate
443 the wellbeing needs of different resource users (Daw et al., 2011).

444 Furthermore, many women are reluctant to leave abusive husbands due to cultural
445 pressures and the social stigma attached to divorce/ separation, but also due to the presence
446 of children. For example, in Subramaniam & Sivayogan’s (2001) study on domestic violence
447 in Sri Lanka, a majority of women, irrespective of their level of education and employment
448 status, placed the welfare of their children as the prime reason for continuing to stay in an
449 abusive relationship. In many parts of the world, women’s access to children following a
450 separation are inadequate and, too often, are non-existent. Even in countries where access

451 rights are legally enshrined, women who leave abusive husbands still suffer the pains of
452 reduced access to their children. It is remarkable, but perhaps unsurprising, what women will
453 endure in order to remain close to their children. As Goel (2005:640) comments:
454
455 "South Asian women are particularly prone to flawed solutions to battering for many
456 reasons, but most important, cultural ideals exert tremendous pressure to accept less-than
457 ideal solutions. The Indian feminine ideal is one of self-sacrifice, not self-preservation…".
458
459 This – and our earlier vignette - leads us to reemphasise the importance of marine resources
460 where they underpin *crucial coping strategies* enabling vulnerable women perhaps not to 'live
461 well', but certainly to 'live better', and gain some degree of independence, respect, and self-
462 worth, in situations where women remain in an abusive relationship.
463 Whilst in our India study, households were almost entirely dependent upon marine
464 resources, it is important to note that often coastal households depend upon a mix of
465 different income sources, and women may secure financial independence through different
466 non-marine related activities, such as agriculture, small business, and labour. Realisation of
467 the diversity and dynamics of 'livelihood landscapes' (Mills et al 2017) is an important step in
468 establishing the extent to which women are dependent upon access to the sea, and how other
469 activities compare in terms of accessibility, feasibility, preference, and economic value.
470
471 **5. Implications of findings for marine resource governance worldwide**
472 So far, this article has provided evidence from South Asia which illustrate some of the
473 unforeseen and unexpected implications of marine conservation for vulnerable groups such
474 as women living with alcoholism and domestic violence in their lives. In order to broaden the

implications of our findings, we now question the extent to which social problems such as these are being reported in fisheries throughout the world, through a scoping review of the published literature. The scoping review was done using the terms: 'alcohol' or 'substance misuse' or 'alcoholism' or 'alcohol consumption' or 'hazardous drinking', and 'fishermen', 'mariners', 'seafarers' during the years 1960-2017, using google scholar and SCOPUS search engines. We propose here, a theoretical argument using insights from our study and wider literature around the types of characteristics that may make certain fisheries more vulnerable to high levels of alcoholism and domestic violence than others. These include i) the physical and mental demands of fishing work, ii) the nature of social relations amongst fishermen, iii) household and marital strains, and iv) adverse socioeconomic conditions.

First, the *physically* and *mentally demanding* nature of work due to the high levels of stress associated with uncertain catch and incomes, and high levels of personal risk whilst at sea, are common to all fishers. Fishing is known to be one of the highest risk peace-time occupations (Roberts, 2010). Research examining how *occupational characteristics* might contribute to Intimate Partner Violence against women, indicates that men with 'dangerous occupations' are more likely to both exhibit violence (Melzer, 2002) and alcoholism (Pougnet et al., 2014); although it is a long standing debate as to whether "high risk" occupations attract problem drinkers or whether they create them as a result of work pressures (Plant, 1978). Either way, it may be logical to assume that higher levels of risk, uncertainty and danger in a particular occupation, including fishing, could be associated with higher levels of alcoholism. Additional data from this study (which also explored wellbeing amongst men) found that men commonly describe the need to drink alcohol following a fishing trip 'as a release' from the physical and mental strains endured from fishing, captured in the below quote from a Sri Lankan fisherman:

"Liquor addiction is a crucial factor that decides the direction of a fisher's life. Most of the fishers think liquor and drugs are essential items for their lives. They justify it, as drugs and liquor are mental and physical pain killers. They take liquor to forget their problems, but liquor and drugs decay their entire lives" (Male fisherman, Sri Lanka #11).

Bhondve et al., (2013), in a study of Mumbai fishermen found that alcohol consumption was more common among fishermen who were stressed, with 31.8% blaming stress as the reason for alcohol use and 20.8% fishermen believing that alcohol increases work efficiency.

Second, successful fishing operations are heavily dependent upon *good social relationships* between fishermen (Acheson 1981). As Coulthard et al., (2014) describe, good relationships among crew members, between the crew and boat skipper, and between boat owners, all constitute important parts of a fisherman's wellbeing. Coulthard and Britton (2015) give an example from Northern Ireland, where a skipper gave up his fishing profession citing poor crew relations as a major reason. Drinking alcohol after a fishing trip is often done with other crew members (this study), and serves to establish and reinforce bonds whilst on land (Rix et al., 1982). Closely linked to this is a fisherman's individual status and reputation, where risk taking (Acheson, 1981) and masculinity are highly valued attributes (Pollnac and Poggie, 2008; Power, 2008) which can – in some cultural contexts- underpin peer-pressure to drink alcohol collectively. Alcohol can play an important role in enhancing as well as disrupting social relationships. For instance, research from Nigeria, which reported significant alcoholism in fishing communities, demonstrates how fishermen clearly connect their habit to their occupational and community identity:

521 "*We drink a lot of wine in this community because we are fishermen, and we live around the*
522 *river. The area is usually very cold and we take a lot of hot drinks to keep ourselves warm. We*
523 *drink very well. ….*" (Ediomo-Ubong, 2014; Ediomo-Ubong, 2015).

524 In addition to examples of socialised cultures of drinking, a greater risk of alcoholism
525 can also be driven by *exploitative work conditions,* in particular, direct encouragement of
526 excessive alcohol use and payment in alcohol by boat captains and owners (as was found
527 throughout this study, see also Tunstall, 1962 and Setiawan et al., 2010). This exploitative
528 arrangement encourages addiction and dependency on the boat owner, and completely
529 excludes women from receiving fishing-based income.

530

531 Third, *strained martial relationships* can result from the very nature of fishing work,
532 and can underpin a greater risk of alcoholism and violence (Pandey et al., 2009). Fishing is an
533 occupation strongly associated with masculinity, pride, and sense of self-worth, and changes
534 to traditional gendered family roles can be felt acutely at home. For example, long periods of
535 time spent at sea can lead to frustrated re-negotiations over household roles and frayed
536 relationships with spouses and children on return to land (Harper and Leicht, 2007). As
537 Coulthard and Britton (2015) demonstrate in Northern Ireland, changing roles and identities
538 within the home, particularly where women subsume the role of main income provider due
539 to failing catches, place strains on marital relations and frequently instil a lack of self-worth
540 amongst men (see also Kessler and McRae, 1982; Rosenfield, 1992). In their study, a majority
541 of active fishers (59%) commented that they struggled to balance the demands of their work
542 with the needs of their family, frequently reporting 'marital strain', 'poor relationships with
543 children' and 'feelings of isolation' as barriers to their wellbeing.

Finally, *adverse socioeconomic conditions* – which cause stress in themselves - can also create low self-esteem and insecurity among men, who then use violence as a 'compensatory behaviour' (Pandy et al., 2009), where traditional masculine identities are perceived as being threatened. This was clearly demonstrated by Bhattacharya's et al., (2011) study of domestic violence in North India, where a large proportion of women felt violence (and drinking) is used by men to release stress, anger and frustration: out of the 52% of women who reported domestic violence during the course of their marriage, 31% of these attributed it to the 'men's failure as a provider' and their 'injured masculinity', as fuel for violence. As Kabeer (2005) comments in a more general sense: "For poorer men…the failure to fulfil their gender ascribed roles, to live up to social expectations about their capacity to protect and provide, can lead to considerable stress and demoralisation on their part as well as domestic violence, high levels of alcoholism, abandonment of their families and responsibilities".

Our scoping review certainly highlighted significant problems of high alcohol consumption and domestic violence in particular fishing communities (van Sittert, 2001 (South Africa), Ediomo-Ubong, 2014; Ediomo-Ubong, 2015 (Nigeria), Busby (1999) (India), Binkley (1995) (Canada). Many of these studies (as in this study) did not directly set out to explore alcoholism and domestic violence, but unearthed these as significant issues as the research progressed (e.g. Robles-Zavala, 2014 (Mexico) and Locke et al., (2017) (Cambodia, the Philippines and the Solomon Islands). Chinnakali et al., (2016) found that alcohol use in fishermen from South India was 'extremely high' with three quarters of fishermen reporting alcohol consumption during fishing, which concur with our findings (albeit our research draws on women's statements about the extent of alcoholism in their husbands). Other research in different contexts has found lower proportions, for example Fort et al (2010) reported in their

568 study in France that 18.6% of fishermen were engaged in 'hazardous drinking', and they
569 highlight the associated risks posed to health and safety concerns at sea.

570 Further serious issues related to alcoholism are reported in a number of studies and
571 are related to the type of fishing, working conditions and social factors. For example, studies
572 in Africa and Asia have associated the prevalence of substance misuse including alcohol with
573 higher rates of HIV/AIDS compared to the general population (e.g. Allison and Seely, 2004).
574 However, the state and extent of the literature on such topics, including government studies
575 and statistics, is not sufficient to make generalisations. Recognising the warnings issued by
576 Westaway et al., 2007 against stereotyping fishing communities as "feckless and reckless",
577 we do not argue that social problems of this nature are unique or particularly problematic in
578 fishing communities rather than other types of communities. Many of our theorisations could
579 hold true for other communities where people are heavily invested in, and dependent upon,
580 threatened natural resources. Instead, we highlight that where these issues do exist, there
581 seems to be a missed opportunity for marine resource governors to engage with fisher
582 wellbeing and degree to which social problems of this nature are reflected in community
583 concerns and priorities. Furthermore, as demonstrated through our vignette, management
584 interventions which proceed without recognition of these problems, where they are
585 prominent, risk exacerbating harm to the already vulnerable, and ultimately undermining
586 sustainability.

587

588 Despite calls for a social wellbeing evaluation of fisheries (Voyer et al., 2017); social
589 problems such as alcoholism and domestic violence continue to be overlooked by marine
590 resource governance and policy. It is therefore perhaps unsurprising that the biennial 'State
591 of the World's Fisheries report for 2018 (titled 'Meeting the Sustainable Development Goals')

592 fails to include a single mention of alcoholism or domestic violence (FAO, 2018). However,
593 awareness of issues around mental and physical health in fisheries are growing (King et al
594 2015) and actions such as a fisheries-specific occupational health service, awareness raising
595 and education, or periodic medical screening, have been proposed potential solutions in some
596 parts of the world (Woodhead et al., 2018), with fruitful collaborations between fishers'
597 welfare groups and mental health charities (see Seafarers UK, 2018). In Vietnam, programmes
598 seeking to address culturally rooted framings of masculinity that perpetuate violence intimate
599 partner violence have instigated constructive discussions to understand the pressures men
600 face in certain fishing communities and redefine masculinity in more positive terms (Hoang et
601 al., 2013). Given the economic and social stresses which are worsening in many fishing
602 communities around the world, the impacts on social relationships *within t*he fishing
603 household and community deserve greater attention (Binkley 1995, Nadel-Klein, 2000; Locke
604 et al., (2017).
605
606 **6. Concluding remarks**
607 This paper has two key contributions. First, the research demonstrates the
608 methodological value of researching wellbeing in a way that prioritises what people
609 themselves feel is most important. Our results support a growing area of research which
610 argues the importance of social relationships in shaping human wellbeing, and is evidence
611 that a conversation around 'living well' can illuminate both highlights and lowlights of
612 people's lives, but does so in an empowering way which enables people to respond in their
613 own words, and on their own terms. Our discussion of wellbeing amongst women in fishing
614 communities in South Asia forms an empirical contribution to a growing theoretical debate
615 as to the potential usefulness of a social wellbeing approach to marine resource management,

616 in particular for assessing social impacts (Coulthard et al., 2014), and for managing
617 environmental change in general (Milner-Gulland et al., 2014; Agarwala et al., 2014; Lange et
618 al., 2016).

619 Second, this research illustrates the importance of understanding how men and
620 women depend upon and access natural resources differently (Yang et al 2018). Our study
621 from South Asia, found that women living with aspects of alcohol and domestic abuse in their
622 homes may have a much higher dependency on marine resources than women who have
623 better marital relations. Marine resources can serve as a critical lifeline, by enabling financial
624 autonomy and empowerment, and increasing women's bargaining position within the
625 household – factors which have been proven to reduce the occurrence of domestic violence.
626 Our vignette illustrates the important role that marine resources can play in particular for
627 women who live with abusive husbands and in households where alcoholism is a substantial
628 drain on financial resources. Poorly informed management interventions can inadvertently
629 place already vulnerable women into greater harm. As we noted earlier, we do not aim to
630 generalise or stereotype *all* fishing communities as violent and alcoholic. We simply highlight
631 that where these problems exist, there is an important opportunity for marine resource
632 governors to engage with communities on these issues rather than to sidestep what may
633 seem to be outside their traditional remit.

634 Echoing Agarwal's call for greater attention to women's property rights, we call here
635 for more attention to the plight of women in fishing communities, particularly those
636 experiencing significant environmental change in coastal areas and declining resource access.
637 Whilst greater recognition of the economic contributions that women make to fisheries has
638 been long promoted (Nadel-Klein and Davis 1988; Thiessen et al., 1992; Kleiber et al., 2015),

639 we stress here the importance of recognizing the connectivity between women's wellbeing,
640 marital relationships, and access to marine resources. This seems to constitute an
641 underplayed opportunity for marine resource governance to significantly contribute to
642 Agenda 2030, by highlighting the ways in which the poorest and most vulnerable in fishing
643 communities depend on marine resources, and taking steps to ensure such groups do not fall
644 into further harm as a result of marine resource policy. Increased engagement with gender
645 and social wellbeing enables marine resource governors to better understand the full extent
646 of the social impact of management interventions and creates new opportunities to
647 contribute to achieving the SDGs.

648 Examples of how marine resource governance could improve its contribution to the
649 SDGs include; supporting the development of counselling, including marital, in marine
650 resource-dependent areas; alcoholism awareness initiatives; regulating and outlawing the
651 payment of fisher crews using alcohol; and support to/ investment in the diversification and
652 strengthening of women's access to sustainable and independent income sources. The latter
653 requires a more detailed and nuanced understanding of how women's livelihood
654 opportunities depended upon men in their households and wider community, and the
655 implications this has for meaningful independence. Wherever possible, these efforts should
656 be made through collaboration with existing organisations and charities already working in
657 the field of social welfare, women's empowerment, and domestic violence who will hold vital
658 skills and local knowledge. Where marine resource access is to be restricted as part of a wider
659 policy, the full impacts on families, especially where domestic violence and alcoholism are
660 present, must be better understood and more explicitly considered in decision-making. Small
661 changes to incorporate consideration of these, and broader social problems, have potential
662 to foster greater local support for resource governance which becomes more aligned with

peoples' wellbeing priorities. Doing so creates new opportunities for marine resource governance to contribute to the SDG ethos to leave no one behind, by placing the most vulnerable first.

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8. Data Availability Statement

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Table 1: Aspects of life deemed most important for living well by women in 2 fishing villages.

Frequency = the no. of times each domain was mentioned as a top 5 priority.

(SL) = Sri Lanka specific domain; (I)=India specific domain.

Wellbeing domain	**Frequency**
Income/job	40
Health	28
Education of children (and grandchildren)	25
Good marital relations	21
House	21
Good neighbour relations	20
Good family relations (including children and extended family)	15
Access to islands (I)	13

Fishing equipment (boats, nets)	11
Free from debt	9
Good habits	8
Daughter's marriage (I)	7
Vehicle (SL)	6
Happiness of others (SL)	6
Religion (SL)	4
Nice clothes (SL)	3
Public participation	2
Savings/ gold	2

Fig.1 Satisfaction scores for prioritised wellbeing domains

Satisfaction scores: the average level of self-reported satisfaction for each wellbeing domain, based on how respondents felt about this area of life over the past year.

Scale: 5 = Exactly as you want it to be; 4 = Good; 3= Fairly satisfied; 2 = Poor; 1 = The worst you can imagine.

Fig. 2. Gulf of Mannar Biosphere Reserve (Source: Bavinck and Vivekenandan 2011)